PATENT

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- a) selecting at least one magnetic resonance parameter to characterize a body part, organ or tissue,
- b) selecting a suitable pulse sequence to calculate and quantify that selected magnetic resonance parameter,
- c) using the selected pulse sequence, acquiring multiple sets of magnetic resonance signals from the body part, organ or tissue at an unchanged position relative to the measurement acquisition system,
- d) calculating and quantifying the magnetic resonance imaging parameters on a pixel by pixel basis,
- e) determining biological properties of interest of a body part, organ or tissue structure by biological means including histological, biochemical, histochemical, and biomechanical, and
- f) correlating quantitative ranges of the selected magnetic resonance parameters with selected biological properties of interest of a body party, organ or tissue.
- 4. (Amended) The method as defined by claim 3 and further including the step of:
- f) creating a color image of the tissue based on representation of sets of one or more quantitative magnetic resonance parameters.
- 5. (Amended) The method as defined by claim 1 and further including the step of:
- f) creating a color image based on representation of sets of one or more quantitative magnetic resonance parameters.
- 6. (Amended) A method for analyzing tissue based on quantized magnetic resonance data comprising the steps of
 - a) acquiring magnetic resonance signals from the tissue,
- b) determining at least one magnetic resonance quality of tissue in each pixel,

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- c) calculating and quantifying the magnetic resonance quality from the magnetic resonance signals pixel by pixel within the tissue, and
- d) correlating the determined magnetic resonance quality with known magnetic resonance qualities of tissue.
- 9. (Amended) The method as defined by claim 8 and further including the step of:
- d) creating a color image of the tissue based on the determined magnetic resonance quality.
- 10. (Amended) The method as defined by claim 6 and further including the step of:
- d) creating a color image of the tissue based on the determined magnetic resonance quality.
- 11. (Amended) Magnetic resonance apparatus for use in analyzing a body comprising:
 - a) means for establishing a magnetic field through the body,
- b) means for exciting nuclei spins in the body with an RF signal oriented at an angle with respect to said magnetic field,
- c) means for receiving magnetic resonance signals from the excited nuclei representative of said nuclei spins,
- d) means b) and c) cooperatively obtaining a multiplicity of sets of magnetic resonance signals and calculating a magnetic resonance quality from the body, and
- e) means for quantifying the magnetic resonance quality pixel by pixel within the body.
- 13. (Amended) Apparatus as defined by claim 12 wherein means b) and means c) utilize pulse echo sequences with varying echo times.

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- 14. (Amended) Apparatus as defined by claim 11 wherein the magnetic resonance quality is chosen from T1 relaxation time, T2 relaxation time, and magnetic ratio.
- 15. (Amended) Apparatus as defined by claim 11 and further including
- f) a display for color imaging the magnetic resonance qualities pixel by pixel.
- 16 (New) The method as defined by claim 1 wherein step d) includes preparing a histogram plot of the frequency distribution of the parameter.
- 17. (New) Apparatus as defined by claim 11 wherein means e) prepares a histogram plot of the frequency distribution of the parameter.